1. INTRODUCTION

1.1 BACKGROUND

This draft environmental impact statement (DEIS) is to support a joint permit application submitted by the Maryland Port Administration (MPA) to the U.S. Army Corps of Engineers (USACE) for the proposed Masonville DMCF, which would affect 130 acres of the Patapsco River (tidal open water) and 1 acre of vegetated tidal and non-tidal wetlands. The National Environmental Policy Act (NEPA) process is being conducted in accordance with the USACE regulations for implementing NEPA as part of a regulatory action [33 Code of Federal Regulations (CFR) 325, Appendix B]. An EIS is required due to the size and potential impacts of the proposed project. This DEIS presents a consolidation of State and Federal study findings, as well as an evaluation of the suitability of the Masonville site to help meet the 20-year Harbor dredged material placement and the 1.5 million cubic yards (mcy) annual placement capacity needs. Potential impacts and site development issues have been included in this document.

Sediment dredged from the Patapsco River west of the North Point-Rock Point line (Figure 1-1) is statutorily prohibited, by the State of Maryland, from being re-deposited in an unconfined manner into or onto any portion of the Chesapeake Bay waters or its tributaries. Extensive studies (Chapter 3) have shown that a dredged material containment facility (DMCF) is the most feasible option for the management of dredged material from the Baltimore Harbor. A DMCF is a facility where dredged material is placed behind dikes or another enclosure to minimize the interaction of the dredged material with the surrounding environment. Existing placement sites for dredged material from Baltimore Harbor (Patapsco River west of North Point-Rock Point line) include the Hart-Miller Island (HMI) DMCF and the Cox Creek DMCF (Figure 1-1). Currently, the majority of the Harbor dredged material is placed at the HMI DMCF, which is scheduled to close after December 31, 2009. Prior to closing, the HMI DMCF will require capping, or need to be covered with material suitable for habitat development. To accommodate this covering, the HMI DMCF may stop receiving Harbor dredged material in 2008. The Cox Creek DMCF also receives Harbor dredged material, however, its placement volume is limited to approximately 0.5 mcy per year due to its size. Placing a larger annual volume of dredged material than is optimal for maximum site capacity in the site is called overloading, which does not allow for efficient dewatering (drying) and consolidation of the dredged material, thereby trapping excess water and reducing the site's overall capacity.

Dredging projects within the Baltimore Harbor proper generate approximately 1.5 mcy of dredged material on an annual basis. This demand for placement of dredged material is expected to continue for the next 20 years and beyond. There are two types of dredging projects: new work projects and maintenance projects. New work projects are those that are not part of an existing dredging project and constitute new development or those that expand existing facilities. Examples of "new work" dredging projects include the deepening of a shipping channel to a new depth or removal of materials as part of the creation of an in-water facility. Maintenance dredging projects are those that maintain an existing facility or channel. Maintenance dredging projects include the routine dredging of shipping channels to maintain them at the appropriate depth.

With only two existing placement sites, a dredged material placement capacity shortfall may begin in Maryland as early as State Fiscal Year (SFY) 2007, resulting in an urgent need to study, select, and implement new options capable of accepting the annual volume of 1.5 mcy of material (Section 1.2.2.2) dredged from within the Baltimore Harbor. The MPA has begun the permitting process to construct an additional DMCF to receive sediments dredged from the Baltimore Harbor.

Safe navigation is a primary mission of the USACE. The USACE objective for navigation projects is to provide safe, reliable, efficient, and environmentally sustainable waterborne transportation systems (channels, harbors, and waterways) for movement of commerce, national security needs, and recreation. To support this objective, the USACE has a need to provide placement capacity for materials dredged to maintain safe passage in the Federally-maintained Baltimore Harbor Channels. A preliminary assessment of the Federal dredged material management needs for the next 20 years was completed in July 2001 (USACE 2001a). The primary conclusion was that there is insufficient capacity remaining to accommodate the dredging needs of USACE and MPA in the next 20 years. In January 2003, a Federal Dredged Material Management Plan (DMMP) study was initiated in order to identify, evaluate, screen, and recommend dredged material management alternatives so that dredging and placement operations could be conducted in a timely, environmentally sensitive, and cost-effective manner for the next 20 years. Highlights of the Federal DMMP are included in Section 3.4.3 and details of the Federal DMMP process, placement sites evaluation, the screening and ranking process, and results can be found in the *Baltimore Harbor and Channels Dredged Material Management Plan and Tiered EIS* (USACE 2005). The study concluded that multiple confined disposal facilities, would be necessary to meet the Harbor placement need over the next 20 years.

The State of Maryland has similar objectives to maintain navigation safety and support commerce. In May 2001, the Dredged Material Management Act was passed by the Maryland General Assembly and signed into law by Governor Parris Glendening. The Act mandated that dredged material placement options be identified to meet the short- and long-term shortfalls in dredged material placement capacity for both the Chesapeake Bay Approach Channels and Baltimore Harbor Channels. At that time, the MPA already had three potential DMCF sites under investigation for the Harbor channels: 1) Sollers Point, 2) Hawkins Point/Thoms Cove, and 3) Deadship Anchorage (Figure 1-1). Reconnaissance-level investigations of these sites were completed in 2002. These options were eliminated from further consideration because of community opposition, environmental concerns, concerns about structural foundation, and the presence of hazardous materials.

In December 2002, the Executive Committee of Maryland's Dredged Material Management Program (DMMP)[1] submitted a report to the Governor and State Legislature recommending the 20-year State of Maryland Dredged Material Management Plan (2003), which included a short- and long-term strategy for managing dredged material. The report concluded that additional options for managing Baltimore Harbor dredged material were needed to meet both the short and long-term Baltimore Harbor dredging needs.

[1] DMMP is used to represent both the Federal Dredged Material Management Plan and the State Dredged Material Management Program because both are commonly referred to as DMMPs. When the Federal DMMP is referenced, it is referring to a plan. When the State DMMP is referenced, it is referring to a program.

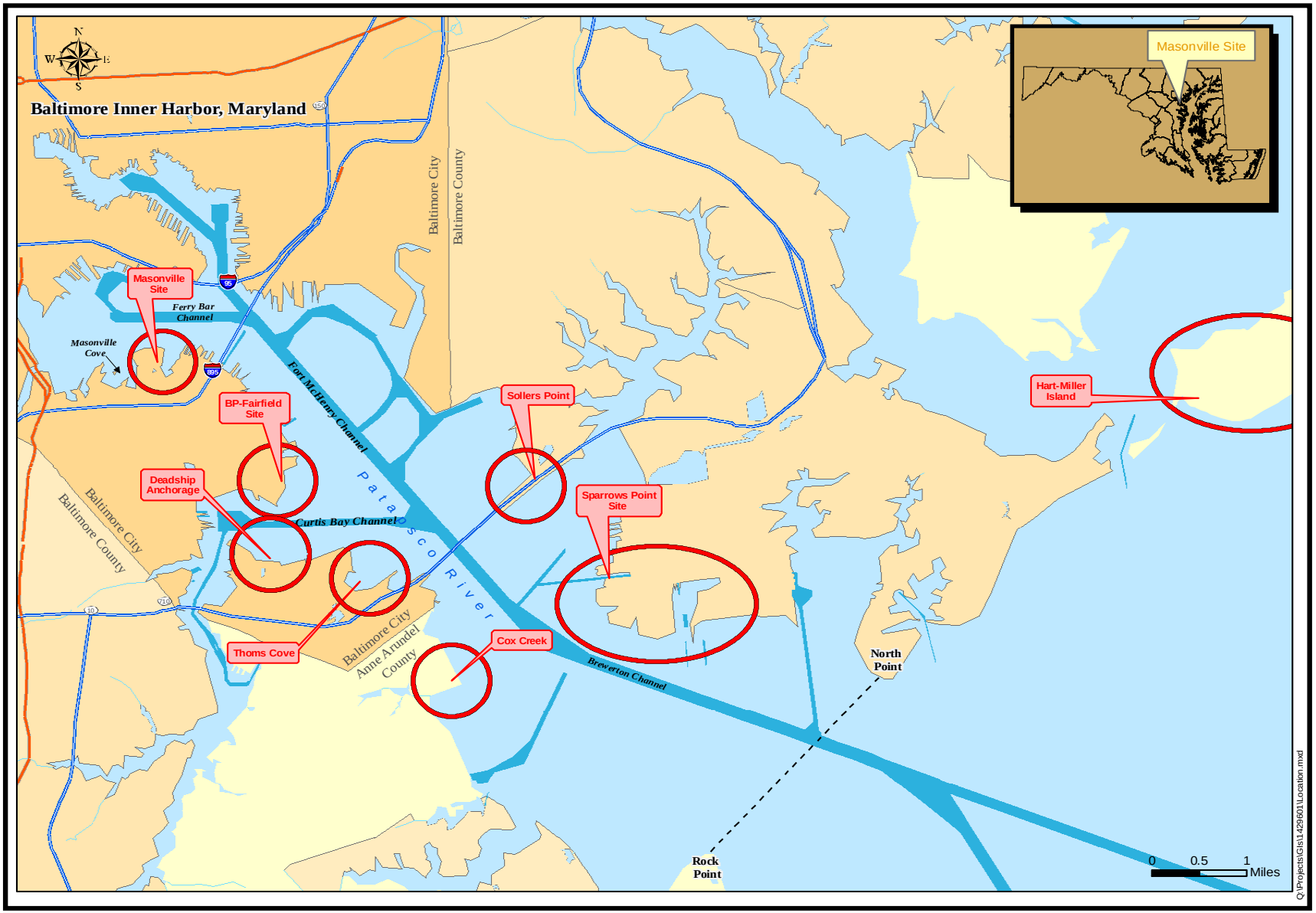


Figure 1-1. Locations of Previously Considered, Current, and Potential DMCFs

The MPA re-evaluated the possible placement sites in and around the Harbor and identified areas with the potential to construct a DMCF. MPA initiated efforts to include community representatives in the planning, engineering and environmental studies, and planning of the proposed facility. EcoLogix, an independent consultant versed in these issues, was retained to identify community leaders and assist in establishing a working group that would converse with the public, represent their interests, and provide consistency with existing land use plans. The resulting working group became known as the Harbor Team, which is referenced throughout this report. The mission of the Team was: "by October 31, 2003 to recommend options for further study able to manage approximately 1.5 mcy of material dredged annually from Baltimore Harbor for 20 years." Reconnaissance-level investigations (preliminary studies that examine a wide range of project alternatives and consider environmental issues, engineering, and costs) of the recommended sites began immediately and were conducted throughout 2003. The projects evaluated included:

- Expansion of the existing Masonville Marine Terminal (MMT) in Baltimore City for a potential DMCF and terminal use, after use as a DMCF,
- Construction of a DMCF on or adjacent to the former British Petroleum (BP) Amoco Asphalt Terminal in Fairfield (BP-Fairfield) in Baltimore City,
- Construction of a DMCF adjacent to Sparrows Point in Baltimore County for potential wetlands creation and a future marine terminal,
- Re-opening of the Cox Creek DMCF, and
- Innovative Reuses.

The locations of these sites are shown in Figure 1-1. The Harbor Team's recommendations were critical to the continued State feasibility-level investigations (a site specific detailed investigation that often recommends a specific project alternative) of Masonville and Sparrows Point as well as reconnaissance-level investigations of BP-Fairfield. Sollers Point, though rejected as a potential DMCF site because of community and environmental concerns, was among the suite of potential community enhancements or improvements associated with the Sparrows Point project, which are discussed in Section 3.3.2.1. Sollers Point had been initially considered by the MPA and underwent reconnaissance-level studies in 2002. The Harbor Team also recommended the rehabilitation of Masonville Cove as a community enhancement associated with the Masonville DMCF (Figure 1-1). The Harbor Team's recommendations were then sent to the Executive Committee, who agreed with their recommendations.

Chapter 3 provides a description of the placement options studied and the alternatives analysis that resulted in the identification of the Masonville, Sparrows Point, and BP-Fairfield sites as potential alternatives. Feasibility-level investigations of Masonville and Sparrows Point and reconnaissance-level investigations of BP-Fairfield were conducted by the MPA in 2004. These studies identified environmental, construction, and ownership issues, related to the other sites, that lead to the selection of the Masonville site adjacent to the existing MMT site for further analysis. Chapter 3 provides a detailed description of the options studies, which resulted in the selection of the Masonville site. During the study process, the need to open a new DMCF by the 2008 dredging season became apparent. The MPA decided that, in order to meet the dredging need, one site would need to be developed in advance of the others. This required the MPA to seek funding and State and Federal permitting for this site independent of the other sites. Coordination with the Joint State and Federal permitting authorities, the Maryland Department of

the Environment (MDE) and the USACE - Baltimore District - Regulatory Branch, determined the need for an EIS for the proposed site to support the permit application.

1.2 PROJECT PURPOSE AND NEED

1.2.1 Purpose

Both the State of Maryland and the USACE - Baltimore District are responsible for the planning and management of sediment dredged from within Baltimore Harbor. As described in Section 1.1, the State initiated studies to evaluate options for DMCF placement within the Harbor. The State of Maryland appointed Harbor Team recommended that construction of a DMCF should be evaluated at three sites within the Harbor: Masonville, Sparrows Point, and BP-Fairfield. An independent evaluation performed by the Baltimore District in the Federal DMMP recommended multiple confined disposal facilities within the Harbor (USACE 2005). The subsequent studies conducted by the State led to the selection of the Masonville site by the State's DMMP Management Committee for additional evaluation through the NEPA of 1969 process.

1.2.2 Need and Problem Identification

Harbor maintenance and new work dredging projects are projected to generate approximately 1.5 mcy of dredged material annually (Section 1.2.2.2). This demand for placement of dredged material is expected to continue for the next 20 years and beyond. Harbor dredged material is currently placed at the HMI and Cox Creek DMCFs. However, the HMI DMCF may stop receiving Harbor dredged material in 2008 so that the site can be capped. The annual capacity at the Cox Creek DMCF is limited due to its size and to avoid or minimize, if possible, overloading of the site. Under current circumstances, a shortfall of annual placement capacity will occur in SFY 2007. This shortfall presents an urgent need to study, select, and implement new options capable of accepting the annual volume of 1.5 mcy of material. The Masonville site is the only site of the three Harbor sites without ownership issues, since it is owned by MPA, and represents the only site for which the NEPA and permitting processes could be expedited to meet the near-term capacity shortfall.

1.2.2.1 Economic Support for Harbor Dredging

The waters of the Patapsco River provide environmental and economic benefits to the State of Maryland and the nation. This section describes the economic benefits of the Port of Baltimore and the required steps for maintaining and developing these benefits.

Baltimore's geographic location as the most inland port on the Atlantic Coast and its proximity to railroads and other methods of ground transportation allow for rapid transportation of materials to the industrial heartland of the United States.

In 2004, the Port of Baltimore handled over 40 million tons of cargo, of which approximately 31 million tons was foreign cargo. From 1994 to 2004, the total value of foreign trade passing through the Port of Baltimore increased from $19.3 billion to $31.2 billion. This increase was primarily a result of imports, which increased in value from $11.6 billion in 1994 to $24.4 billion in 2004. There was a decrease of $0.8 billion in the value of exports over the same decade. In

2004, Port activity generated or maintained approximately 41,280 jobs in Maryland alone (MPA 2005b). Economic benefits from 2004 included:

- $2.4 billion in personal wage and salary income,
- $1.9 billion in business revenues,
- $1.2 billion in local purchases,
- $271 million in State, county, and municipal taxes, and
- $507 million in U.S. Custom Service duties and taxes.

The economic benefits cited above are realized by providing safe passage through navigable waters for the ships coming into the Port. Safe passage is achieved through dredging projects, which are essential for providing and maintaining channel depths and for reliable and efficient waterborne transportation systems. Drafts of ships continue to increase as shippers attempt to achieve greater economy of scale, which necessitates the deepening of shipping channels. Dredging projects are required to:

- Maintain access to existing piers and berths,
- Provide access to new port facilities, and
- Deepen and widen channels to accommodate larger ships with deeper drafts.

1.2.2.2 Harbor Dredging Need

Four groups fund dredging within the Harbor: the Federal government, State government, local government, and the private sector. Quantifying the Harbor's dredging needs, both current and future, requires estimates of maintenance dredging based on past events, as well as projections of new dredging projects based on proposed Port improvements. In this analysis, it is necessary to view dredging needs on an annual basis, since exceeding allowable annual site capacities results in inefficient use of ultimate site capacity. Projected annual maintenance and new dredging projects makeup the anticipated dredging needs for the Port of Baltimore, which are quantified in the remainder of this section. The material quantities presented herein are expressed in terms of the *in-situ* "cut" volume, which is the volume of the material prior to dredging or disturbing it, of the material to be dredged.

Table 1-1 presents the MPA's projections for Harbor dredged material quantities through SFY 2010 and the closure of the HMI DMCF. Federal maintenance quantities are based on the average annual dredging quantity from 1996 to 2004 for Baltimore Harbor channel maintenance (USACE 2005). Annual State, local, and private sector allowances for dredging are based on historical data and a contingency, which is an allotment for large dredging projects or increased sediment quantities due to weather. The State new work projects are taken from the *2010 Facilities Plan for Port of Baltimore, Implementation Plan Update* (M&N 2005a). Estimates of new work dredging for privately financed projects, scheduled from SFY 2006 through 2010, are taken from dredging permit applications and interviews with private terminal operators.

After SFY 2010, an annual Harbor dredging average of 1.5 mcy is assumed as the placement need. Maintenance material makes up 0.6 mcy of this and includes 0.4 mcy for Federal channel

Table 1-1. Planned Federal, State, Local, and Private Sector Dredging Needs in the Baltimore Harbor

Source	Placement	State Fiscal Years (quantities in mcy*)				
	Facility	**2006**	**2007**	**2008**	**2009**	**2010**
New Work						
4 Private Sector/Local Projects	HMI	0.19				
MPA Cruise Terminal	HMI	0.24				
3 Private Sector/Local Projects	Cox Creek		0.12			
1 Private Sector/Local Project	HMI		0.60			
Berth 4 Dredging - Seagirt Marine Terminal	HMI		3.30			
Masonville Unsuitable Pre-Dredging	HMI		1.80			
Berths 2 & 3 Reconstruction - Dundalk Marine Terminal	Cox Creek		0.04			
1 Private Sector/Local Project	HMI			1.80		
4 Private Sector/Local Projects	Cox Creek			0.59		
Berth 1 Reconstruction - Dundalk Marine Terminal	HMI			0.02		
3 Private Sector/Local Projects	New Site				0.55	
2 Private Sector/Local Projects	Cox Creek				0.06	
Pier 3 Dredging - Masonville Marine Terminal	Cox Creek				0.25	
3 Private Sector/Local Projects	New Site					0.38
Berths 1-6 Deepening - Dundalk Marine Terminal	Cox Creek					0.88
Berths 7 & 8 Reconstruction - Dundalk Marine Terminal	New Site					0.04
Maintenance						
Federal	HMI	0.95				
Private Sector/Local	HMI		0.10			
Federal	Cox Creek		0.50			
Private Sector/Local	Cox Creek			0.10		
Federal	Cox Creek			0.50		
Private Sector/Local	New Site				0.10	
Federal	New Site				0.50	
Private Sector/Local	New Site					0.10
Federal	New Site					0.50
Total		**1.38**	**6.46**	**3.01**	**1.46**	**1.90**
Between SFY 2006 and 2010, 14.2 mcy of Harbor dredged material needs to be placed						

Source: Adapted from Maryland Port Administration's List of Dredging Projects, 9-14-05
**Volumes are cut volumes. Cut volume is the volume of material removed from the channel as measured in its original position. The placement volume is the volume of material slated for placement at a site as measured in cut volume.*

maintenance, 0.1 mcy for State and local maintenance, and 0.1 mcy for private sector maintenance. New dredging projects make up the remaining 0.9 mcy with 0.6 mcy for State projects and 0.3 mcy for private sector projects. This assumption of 1.5 mcy per year is based on a long-term average for dredged material placement need for materials dredged from the Baltimore Harbor.

1.2.2.3 Existing Placement Sites

HMI and Cox Creek are the two existing sites that are currently used for placement of Harbor dredged material. Both sites have constraints for use and are discussed in more detail in the following paragraphs.

Hart-Miller Island

HMI is located in the tidal open water of the Chesapeake Bay (Figure 1-1). The HMI DMCF is permitted to accept Harbor material and has a maximum annual capacity of 2.7 mcy to avoid overloading the site. Construction of the HMI DMCF began in the 1981 and placement operations began in May of 1984. In 1990, the State of Maryland closed the 300-acre South Cell from receiving any new material, however the North Cell remained open (MPA 2005a). The South Cell was closed to be used a passive recreation site. The total remaining capacity for the HMI site is estimated at approximately 14.2 mcy, based on the remaining site volume and projected overloading in SFY 2007. The HMI DMCF is not available for dredged material placement after SFY 2010 because of the requirement to close the site for placement of dredged material after December 31, 2009, as stipulated in Wetlands License No. 88-0315 (R2) and mandated by the Code of Maryland Regulations (COMAR), Environmental Article, Title 5, Water Resources Subtitle 11, Chesapeake Bay and Tributaries.

In addition, site placement capacity after SFY 2008 may be constrained pending the selection of the source for the HMI DMCF cover by the HMI North Cell Closure Team Working Group (NCCTWG). The HMI NCCTWG is evaluating many closure options and sources for HMI cover material. The final material placed in the HMI DMCF North Cell must support the final closure plan, which includes developing the North Cell to support a functioning ecosystem. This is the worst case HMI DMCF cover scenario for Harbor placement capacity, and the MPA must be able to accommodate its occurrence. Thus, 9.2 mcy is the HMI DMCF's remaining capacity for material dredged from the Harbor used for planning purposes in this document.

Cox Creek

Cox Creek is a 133-acre DMCF available for Harbor material placement (Figure 1-1). It is located one mile south of the Francis Scott Key Bridge on the west bank of the Patapsco River. Cox Creek can efficiently accept 0.6 mcy of Harbor materials annually and is anticipated to receive 6.0 mcy of dredged material over a 12-year period (USACE 2002). This facility was originally constructed in the 1960s by the USACE as a placement site for dredged material from the Baltimore Harbor. Placement at this facility continued until the 1970s (USACE 2002). In the 1990s, the MPA purchased the site with the intent to reactivate it as a DMCF for Harbor dredging projects (USACE 2002).

1.2.2.4 Applicable Federal Navigation Projects

Sediments dredged from the Federal navigation channels within Baltimore Harbor are currently placed at the HMI DMCF. These channels and anchorages include:

- Brewerton Channel
- Brewerton Angle
- Ft. McHenry Channel
- Curtis Bay Channel
- Curtis Creek Channel
- Ferry Bar Channel
- Northwest Branch (East and West Channels)
- Dundalk West Channel
- Seagirt West Channel
- Dundalk-Seagirt Connecting Channel
- Dundalk East Channel
- South Locust Point Channel
- Anchorage Numbers 3 and 4

Sediments dredged from these channels could be placed at Cox Creek or another approved DMCF following closure of the HMI DMCF. These channels and branch channels are authorized within several different Federal Navigation Projects. The MPA and the Federal Channels project support seven public and over 30 private terminals. The applicable Federal Navigation Project and authorized dimensions for each of the channels mentioned above are described in the following sections.

Baltimore Harbor and Channels Federal Navigation Project

The Baltimore Harbor and Channels Federal Navigation Project which was authorized by the Rivers and Harbors Act of August 8, 1917, and modified by the Rivers and Harbors Acts of January 2, 1927; July 3, 1930; October 7, 1940; March 2, 1945; July 3, 1958; and December 31, 1970. The authorized dimensions of the applicable Harbor channels are as follows:

(a) Brewerton Channel (Figure 1-2): The Brewerton Channel is located within the Patapsco River and is approximately 3.4 miles long and authorized to a depth of 50 ft mean lower low water (MLLW) and a width of 800 ft.

(b) Brewerton Angle (Figure 1-2): Brewerton Angle connects the Brewerton Channel and the Fort McHenry Channel, and is approximately 1.0 mile long, ranges in width from 700 to 1,375 ft, and is authorized to a depth of 50 ft MLLW and a width of 800 ft.

(c) Fort McHenry Channel (Figure 1-2): The Fort McHenry Channel is approximately 4.2 miles long, 700 ft wide, and authorized to a depth of 50 ft MLLW and a width of 800 ft. The Fort McHenry Channel is the main channel in the Patapsco River.

(d) Curtis Bay Channel (Figure 1-2): Curtis Bay Channel is authorized at 600 ft wide (constructed to 400 ft wide), authorized to a depth of 50 ft MLLW, and 2.2 miles long

from the main channel to, and including, a 1,275-ft wide turning basin at the head of Curtis Bay

(e) Curtis Creek (Figure 1-2): Curtis Creek Channel is a total of approximately 2.3 miles long, and includes 3 channel reaches and 2 basins, as described below:

(1) The lower reach of the Curtis Creek Channel is authorized to a depth of 35 ft MLLW and a width of 200 ft, from the 50-ft channel in Curtis Bay to 750 ft downstream of the Pennington Avenue Bridge, a distance of 0.9 mile.
(2) The middle reach of the Curtis Creek Channel is authorized to a depth of 22 ft MLLW and a width of 200 ft from the 35-ft channel to, and along, the marginal wharf of the Curtis Bay Ordnance Depot.
(3) An irregularly shaped basin 18 ft below MLLW and 320 ft wide, adjacent to the head of the 22-ft channel, a distance of 600 ft.
(4) A basin 15 ft below MLLW and 450 ft wide, from the end of the 22-ft channel to the end of the marginal wharf, a distance of 0.2 mile.
(5) The upper reach of the Curtis Creek Channel is authorized to a depth of 22 ft MLLW and a width of 200 ft, from the 22-ft channel of the CSX Rail Transport bridge to the vicinity of Arundel Cove, a distance of 2,800 t, then 100 ft wide in Arundel Cove for a distance of 2,100 ft, with an anchorage basin of 700 ft^2.
(6) Adjacent to the channel and southwest of the wharf of the Coast Guard Depot at Curtis Bay.

(f) Middle Branch (Ferry Bar East Section) (Figure 1-2): The Ferry Bar East Section of the Middle Branch is authorized to a depth of 42 ft MLLW and 600 ft wide, from the main channel at Fort McHenry to Ferry Bar, a distance of 1.4 miles. NOTE: The West Ferry Bar and Spring Garden Sections of the existing project were deauthorized by Section 1001 of the Water Resources Development Act (WRDA) of 1986, Public Law (PL) 99-662.

(g) Northwest Branch (Figure 1-2): The Northwest Branch includes the two channels described below:

(1) East Channel: The East Channel connects to the Fort McHenry Channel and is authorized to a depth of 49 ft MLLW, a width of 600 ft, and is 1.3 miles long with a 950-ft wide turning basin at the head of the channel.
(2) West Channel: The West Channel is authorized to a depth of 40 ft MLLW, a width of 600 ft, and is 1.3 miles long, with a 1,050-ft wide turning basin at the head of the channel.

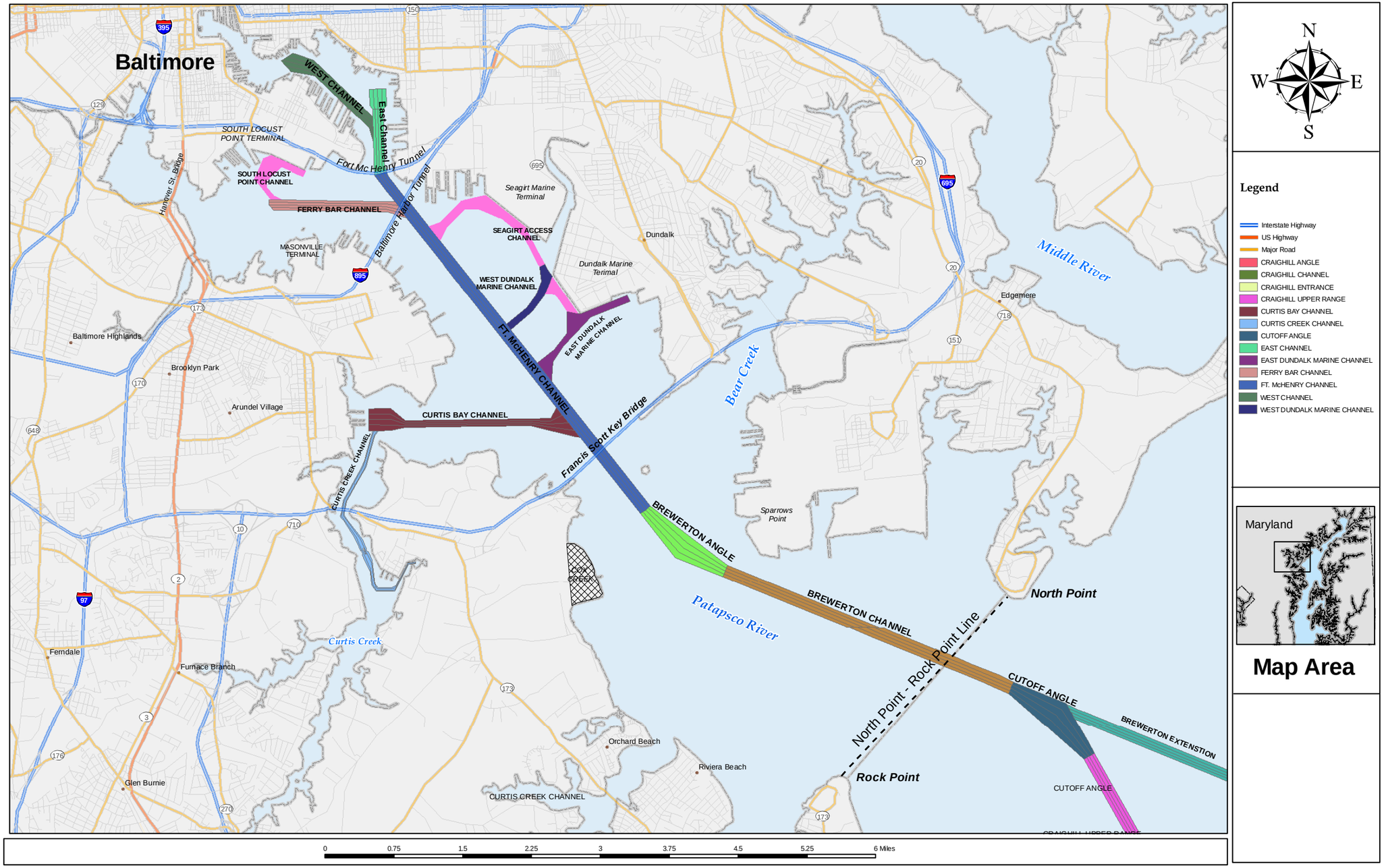


Figure 1-2. Channels in the Baltimore Harbor

Baltimore Harbor Anchorages and Channels Project

The Baltimore Harbor Anchorages and Channels Project was authorized by Section 101a (22) of the WRDA of 1999. The authorized dimensions of the applicable channels are as follows:

1. The Dundalk West Channel (Figure 1-2): The Dundalk West Channel is authorized to a depth of 42 ft MLLW, a width of 500 ft wide, and is approximately 3,800 ft long, with widening at the bends and entrances.

2. The Seagirt West Channel: The Seagirt West Channel is authorized to a depth of 42 ft MLLW, a width of 500 ft, and is approximately 5,600 ft long, with widening at the bends and entrances.

3. The Dundalk-Seagirt Connecting Channel: The Dundalk-Seagirt Connecting Channel is authorized to a depth of 42 ft MLLW, a width of 500 ft, and is approximately 2,500 ft long, with widening at both ends.

4. The Dundalk East Channel (Figure 1-2): The Dundalk East Channel is authorized to a depth of 38 ft MLLW, a width of 400 ft, and is approximately 3,800 ft long, with widening at the bends and entrances. The MPA subsequently deepened the channel to 42 ft.

5. The South Locust Point Channel (Figure 1-2): The South Locust Point Channel is authorized to a depth of 36 ft MLLW, a width of 400 ft, and is approximately 5,600 ft long, with widening at the bends and entrances.

6. Anchorage No. 3: Anchorage No. 3 is authorized to a depth of 42 ft MLLW for a length of 2,200 ft and a width of 2,200 ft; a depth of 42 ft MLLW for an additional length of 1,800 ft and a width of 1,800 ft; and a depth of 35 ft MLLW for a length of 500 ft and a width of 1,500 ft.

7. Anchorage No. 4: Anchorage No. 4 is authorized to a depth of 35 ft MLLW for a length of 1,800 ft and a width of 1,800 ft.

1.3 NEPA PROCESS

Any action on Federal property, requiring Federal funding or a Federal permit must comply with the NEPA. Since a Federal permit would be required for construction, the proposed Masonville DMCF is required to go through the NEPA process as part of the regulatory process. The NEPA requires Federal agencies to analyze and consider the direct and indirect environmental and socioeconomic impacts associated with proposed actions. The USACE is requiring an EIS to accompany the MPA's permit application to address the impacts resulting from the potential filling of 130 acres of open water.

The EIS process incorporates input from the public during the various stages of development by providing stakeholders (Federal, State, and local agencies as well as private interest groups and

the general public) with an opportunity to participate and comment. The NEPA process requires the evaluation of a "No Action (without proposed project) Alternative" in addition to considering other alternatives to the proposed action. When selecting a preferred alternative, the applicant is required to consider not only the environmental impacts associated with the proposed action and action alternatives, but also the cumulative impacts of the project in the reasonably foreseeable future. These impacts need to be balanced with the agency's statutory mission, needs, responsibilities, and relevant technical and economic factors, and the needs and benefits to the general public. Therefore, this document analyzes the direct effects (those caused by the proposed action and occurring at the same time and place), the indirect effects (those caused by the proposed action and occurring later in time or farther removed in distance but still reasonably foreseeable), and the cumulative effects, which are the combined, incremental effects of human activity when added to other past, present, and reasonably foreseeable future actions.

The EIS process is initiated through scoping, and followed by a development of alternatives, an alternatives impact analysis, a DEIS and public review period, and ultimately a final EIS. At the conclusion of the NEPA process, appropriate Federal findings are documented in a Record of Decision (ROD).

1.4 PROPOSED ACTION TO ACCOMMODATE HARBOR NEEDS

MPA's proposed plan for meeting the needs of the Harbor dredging is shown in Table 1-2. Table 1-2 illustrates a placement plan utilizing the HMI, Cox Creek, and additional anticipated new Harbor sites. Table 1-2 shows planned overloading of Cox Creek, the proposed Masonville DMCF, and the second new (proposed) Harbor placement site as part of the solution for accommodating material from required Harbor dredging. Overloading occurs when a site's optimal annual placement capacity is exceeded. Generally, the optimum capacity is derived by multiplying the available surface area by a 3-ft lift thickness (USACE 2001b), which is the estimated thickness of dredged material that can be effectively dewatered during the late spring to the early fall drying time each year. Overloading reduces the overall capacity of the site due to inefficient consolidation of the material. Table 1-2 does not include the material that will be used to cap the HMI DMCF.

The transition period, shown in Table 1-2, begins in SFY 2007 when placement of Harbor dredged material is affected by the limited remaining capacity and time for placement at the HMI DMCF. The transition period extends through the covering of the HMI DMCF and the period of time for construction of two new Harbor placement options. During the transition period, the MPA's flexibility for scheduling dredging projects may be limited.

The span of the transition period is from 2007 to 2013. There are three stages to the transition period:

- **Stage 1 –** Period of limited remaining HMI DMCF capacity for Harbor material, SFYs 2007 – 2008;
- **Stage 2 –** Period of HMI DMCF covering, SFYs 2009 – 2010; and
- **Stage 3 –** Period of second new proposed Harbor site construction, SFYs 2011 – 2013.

Table 1-2. MPA Harbor Dredged Material Placement Plan for HMI, Cox Creek, and Other Potential Placement Sites.

Placement Sites[1]	Remaining Capacity	State Fiscal Year (SFY) 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	Capacity Used
		Annual Quantities (mcy)[3]												
Harbor Placement Need		**2.0**	**5.9**	**3.0**	**1.2**	**1.9**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	
Hart Miller Island Placement	9.0	2.0	5.2	1.8										9.0
Remaining Need		**0.0**	**0.7**	**1.2**	**1.2**	**1.9**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	**1.5**	
Remaining Harbor Placement		**Transition Period**												
Cox Creek	6.0		0.7	1.2	0.3	0.9	0.6	0.6	0.6	0.6	0.3	0.2		6.0
Masonville (proposed)	16.0				0.9	1.0	0.9	0.9	0.9	0.4	0.5	0.5	0.2	6.2
Second Site (proposed)	?									0.5	*0.7*	*0.8*	0.3	2.3
Third Site (proposed)	?												1.0	1.0

[1]*By 2023,a strategy to process 0.5 mcy of dredged material per year by innovative reuse will be in place. .*

Notes: Table shows that the current estimated capacity of HMI DMCF is 9.0 mcy (Section 1.2.2.3)

Gray shading indicates a year and site in which overloading is occurring. Italicized numbers indicate a year and site in which overloading may occur depending on the annual capacity of the second new Harbor site. Cox Creek has reduced placement in 2009 to allow for additional consolidation to occur because of the overloading quantities from the previous 2 years. Cox Creek begins preparing for site closure in 2015 and the site is not overloaded after this point.

The first row gives the projected annual placement need, which was broken down in Table 1-1. The second row gives the anticipated quantity to be placed at the HMI DMCF. The third row is the annual need not accommodated by the HMI DMCF, which must be placed at another site. The fourth through eighth rows show the anticipated placement quantities at Cox Creek and the 3 proposed Harbor sites, including Masonville.

A transition period is shown to span from SFY 2007 to SFY 2013. During the transition period, the MPA's flexibility in scheduling dredged material placement is limited. Overloading will likely occur in some Harbor sites to accommodate annual placement need. This overloading produces undesirable site conditions and can result in partial loss of total Harbor capacity. The overloading shown in Table 1-2 is not expected to change the capacities of the facilities shown.

During Stage 1 of the transition period, SFYs 2007 – 2008, the HMI DMCF capacity will be used to accommodate Federal, State, local, and private sector Harbor dredging needs. Based on the projected dredging for these sources, the current total quantity to be dredged exceeds the available placement capacity. Overloading at the HMI and Cox Creek DMCFs will be required to accommodate Harbor dredging projects during this period, which may decrease the overall capacity of those sites.

During Stage 2 of the transition period, SFYs 2009 – 2010, the HMI DMCF will be covered (the source of which is currently under study) and Cox Creek and the proposed Masonville site would be available for placement. Overloading would be required during this period in both the Cox Creek DMCF and the proposed Masonville DMCF.

During Stage 3 of the transition period, SFYs 2011 – 2013, Cox Creek and the first new proposed Harbor site would be available for Harbor material placement, collectively accepting 1.5 mcy per year. This period requires overloading of these sites and ends when the second new proposed Harbor placement site becomes available. The overloading of these sites is not expected to significantly decrease overall site capacity.

During the transition, there are 7 years, SFYs 2007 to 2013, where overloading will be required in either the Cox Creek DMCF or the proposed Masonville DMCF to accommodate the projected dredging need. This overloading will occur due to the lack of annual capacity available during the transition from the 2.7 mcy of annual capacity offered at the HMI DMCF to the combined annual capacity of 1.5 mcy from proposed new Harbor sites. There may also be overloading of a second new proposed Harbor placement site in 2015 and 2016, as the Cox Creek DMCF reaches its total capacity.

As stated above, Table 1-2 shows the transition period accommodating scheduled new work dredging projects and average annual maintenance dredging quantities by overloading the Harbor dredged material placement sites. Overloading may not occur to the extent shown in Table 1-2 because of technical feasibility, potential lost overall capacity, and future site conditions. This creates some uncertainty as to the extent of overloading possible at the Harbor sites. These sites would be overloaded to the extent possible to meet the projections shown in Table 1-2.

The MPA has committed to identifying a strategy to manage 0.5 mcy of dredged material annually through cost-effective and safe innovative reuses by 2023, in accordance with the recommendations of the Harbor Team (Harbor Team 2003). The MPA has also created an Innovative Reuse Committee to develop a strategy to manage this material through safe and cost-effective innovative resuses within that timeframe. The Harbor Team recommended that the MPA consider the viability of the following innovative reuse options, which will be considered by the Innovative Reuse Committee:

- Mine and quarry reclamation
- Landfill usage
- Use in aggregates
- Creation of bricks for construction and walkways
- Agricultural use

- Innovative reuse at Cox Creek

Though innovative reuse is currently a high cost alternative, it is more sustainable for the long-term and this option is being seriously considered by the MPA to meet long-term dredged material placement needs and some innovative reuse options will be in place by 2023.

1.4.1 New Placement Options

New placement options are required for the MPA to accommodate projected dredging needs. As shown in Table 1-2, the MPA's current plan requires opening the proposed Masonville DMCF, with at least 0.5 mcy of annual capacity, by SFY 2009. In addition, proposed second and third placement sites, with annual capacities of at least 0.5 mcy would need to be opened by 2013 and 2017, respectively. Accommodation of all projected dredging projects would also require the undesirable practice of overloading at the HMI DMCF, the Cox Creek DMCF, and the proposed Masonville DMCF.

1.4.2 No Action Alternative

Under the no action alternative, the Masonville DMCF would not be developed. If the Masonville DMCF is not developed, the MPA would either defer currently scheduled dredging of the Port of Baltimore navigation channel system and associated public and private berthing facilities, or overload existing DMCFs, or some combination of these two actions.

Deferring scheduled dredging of navigation channels and berths would result in the gradual accumulation of sediments, which would normally be removed periodically from those channels and berths through maintenance dredging, and the failure to remove sediments from new work projects. Increasing amounts of accumulating sediments in existing channels causes reduced under-keel clearance for vessels that utilize the Port of Baltimore.

Reduced clearances can result in increased risk of groundings, impaired ability to maneuver to maintain safe headway and avoid collisions, and restrictions in the speed at which vessels can transit the shipping channels. Groundings can increase the risk of environmental damage association with the accidental release of fuel, lubricating oil, or liquid cargo product into the surrounding waters, and can interfere with waterborne commerce that may share the blocked navigation channel. Impaired ability to maneuver due to reduced channel depth may increase the risk of collision between cargo vessels and other vessels, including recreational vessels. At the very least, restrictive speed limits due to reduced channel depths increase the costs for shipping lines that utilize the Port of Baltimore. This is because tightly-scheduled cargo vessels would take longer to enter the Port, load or unload their cargo, and leave the Port.

The Port of Baltimore enters into contracts with shipping companies under which the companies commit to bring their cargo through the Port for various periods of time. These contracts reflect shipping firms' long-term plans to utilize their fleet of vessels to transport cargo through the Port. Changes to available channel depths could prevent certain vessels from using the Port entirely, or could increase those risks discussed above. Shipping firms are gradually upgrading their vessel fleets; average vessel drafts for many classes of vessel have tended to increase. Faced with the possibility of decreasing channel depths, shipping firms may choose to take their

business to other ports, with the asssociated loss of revenue and jobs to the Port of Baltimore and the State of Maryland.

If expected new work dredging is deferred, shipping firms with plans to expand facilities to accommodate new business or increased business volumes associated with deeper draft vessels may choose instead to defer the planned expansion, or may choose to relocate to other ports where the required facilities are available. In either case, increased or planned revenue and jobs may be lost from the Port of Baltimore and the State of Maryland.

Because of the potential economic losses to the Port of Baltimore and the State of Maryland associated with the potential deferment of scheduled dredging, the MPA considers the no action alternative to be much less preferable than continued dredging and the overloading of existing dredged material placement sites.

Because the MPA has determined that the currently scheduled dredging activities should not be deferred, the no action alternative would result in the need to place the materials scheduled to go to the proposed Masonville DMCF at the HMI and Cox Creek DMCFs through 2009. Beginning in 2010, the HMI DMCF will be unavailable for placement of dredged material (Maryland Code Section 5-1103) and all dredged material would be placed at the Cox Creek DMCF. There are currently no other placement facilities for Harbor dredged sediments. The HMI DMCF will be capped with approximately 5 mcy of material suitable for habitat development, so it is possible that the HMI DMCF would be unable to receive material dredged from Baltimore Harbor channels in 2009. The next proposed placement facility would not be constructed until approximately 2014 (Table 1-2). From 2009 to 2014, there are 4.6 mcy of dredged material that would have been placed at the proposed Masonville DMCF that would need to be placed in an existing containment facility (Table 1-2). The 1.9 mcy of overburden material from the Masonville site to be placed at the HMI DMCF under the proposed Masonville DMCF alternative would not be placed there and this volume would be available for other placement needs.

The no action alternative involves annual overloading at both the HMI and Cox Creek DMCFs. Overloading at the Cox Creek DMCF would decrease the overall site life of Cox Creek by approximately 4 years, assuming that the material scheduled for placement at the proposed Masonville DMCF for 2010 through 2012 were to be placed at Cox Creek and the material to be placed at the proposed Masonville DMCF in 2009 was placed at the HMI DMCF. Refer to Table 1-2 for anticipated quantities of material that would have been placed at the proposed Masonville DMCF, if it were constructed. If the overall capacity of Cox Creek is decreased by the significant overloading (two to three times its efficient placement rate after 2010), the site may be filled to capacity prior to 2012. If Cox Creek is filled to capacity prior to 2014, there would be no DMCFs in the area to receive Baltimore Harbor sediments.

Overloading at the HMI and Cox Creek DMCFs would very likely result in the need to hold water at the facilities for longer periods and may result in increased discharges of nutrients into the Chesapeake Bay and Patapsco River, respectively. These increased discharges may require modifications to the existing discharge permits. Additional nutrient offsets, such as DMCF spillway treatment or retrofits to existing wastewater treatment plants may be required.

The existing 130 acres of open water and 10 acres of adjacent uplands at Masonville would not be filled if the DMCF is not developed. The existing conditions at the Masonville site, described in Chapter 2, would remain. This includes the preservation of approximately 1 acre of submerged aquatic vegetation (SAV), 126 acres of benthic habitat, 126 acres of essential fish habitat (EFH), and 10 acres of shallow water habitat (SWH). Note that the unauthorized dry dock at adjacent to the former Kurt Iron and Metal (KIM) facility is not considered benthic or EFH habitat, but is considered as open water filled or lost as a result of the proposed Masonville DMCF, if it were constructed. The air emissions associated with the construction of the proposed Masonville DMCF would not be released. Many of the emissions that would be associated with the management of the proposed dredged material placement at Masonville would be associated with the HMI and Cox Creek DMCFs, since this material would still be managed at a facility. The full-time equivalent (FTE) jobs that would be associated with the construction and monitoring of proposed Masonville DMCF would not be created.

If the proposed Masonville DMCF is not constructed, there would be no regulatory reason to remediate the derelict vessels on the eastern side of the proposed DMCF site. The funding currently allocated for site development would be released to other Maryland Department of Transportation (MDOT) efforts and the remediation of the 25 derelict vessels would be deferred. Thus, removal of this source of contamination from the Patapsco River would not occur. Also, the other ecological benefits and community enhancements associated with the proposed Masonville DMCF (Section 4.9) would not be realized. The enhancements associated with the proposed Masonville compensatory mitigation plan (Section 6) would not be realized.

1.5 PERMIT PROCESS

The USACE is responsible for regulating certain activities in waters of the United States, including jurisdictional wetlands. Within any given State, water use and appropriations are generally managed by a State regulatory agency. In Maryland, this regulatory agency is the MDE. As part of its public interest review, the USACE coordinates applications for Department of the Army (DA) permits with the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), the Maryland Historical Trust (MHT), the Maryland Department of Natural Resources (DNR), the Maryland Board of Public Works, and the MDE. For the proposed Masonville DMCF, the USACE - Baltimore District, is the lead Federal agency and is coordinating the permit evaluation process, including the public interest review. The USACE evaluates Federal permit applications for construction in navigable waters of the U.S. pursuant to Section 10 of the River and Harbor Act of 1899. The USACE regulates the discharge of dredged or fill material in waters of the United States, including jurisdictional wetlands, pursuant to Section 404 of the Clean Water Act (CWA). The proposed project will require other authorizations in addition to the DA permit, including a Water Quality Certification and a Coastal Zone Consistency Determination from MDE, and a Wetlands License from the Maryland Board of Public Works. Approval from the Maryland Critical Area Commission (MCAC) is also required.

To ensure that at least one new Harbor site is available to meet the placement capacity shortfalls, advanced site screening and feasibility work were conducted by the MPA. The pertinent stakeholders and resource agencies were consulted in advance through the Bay Enhancement

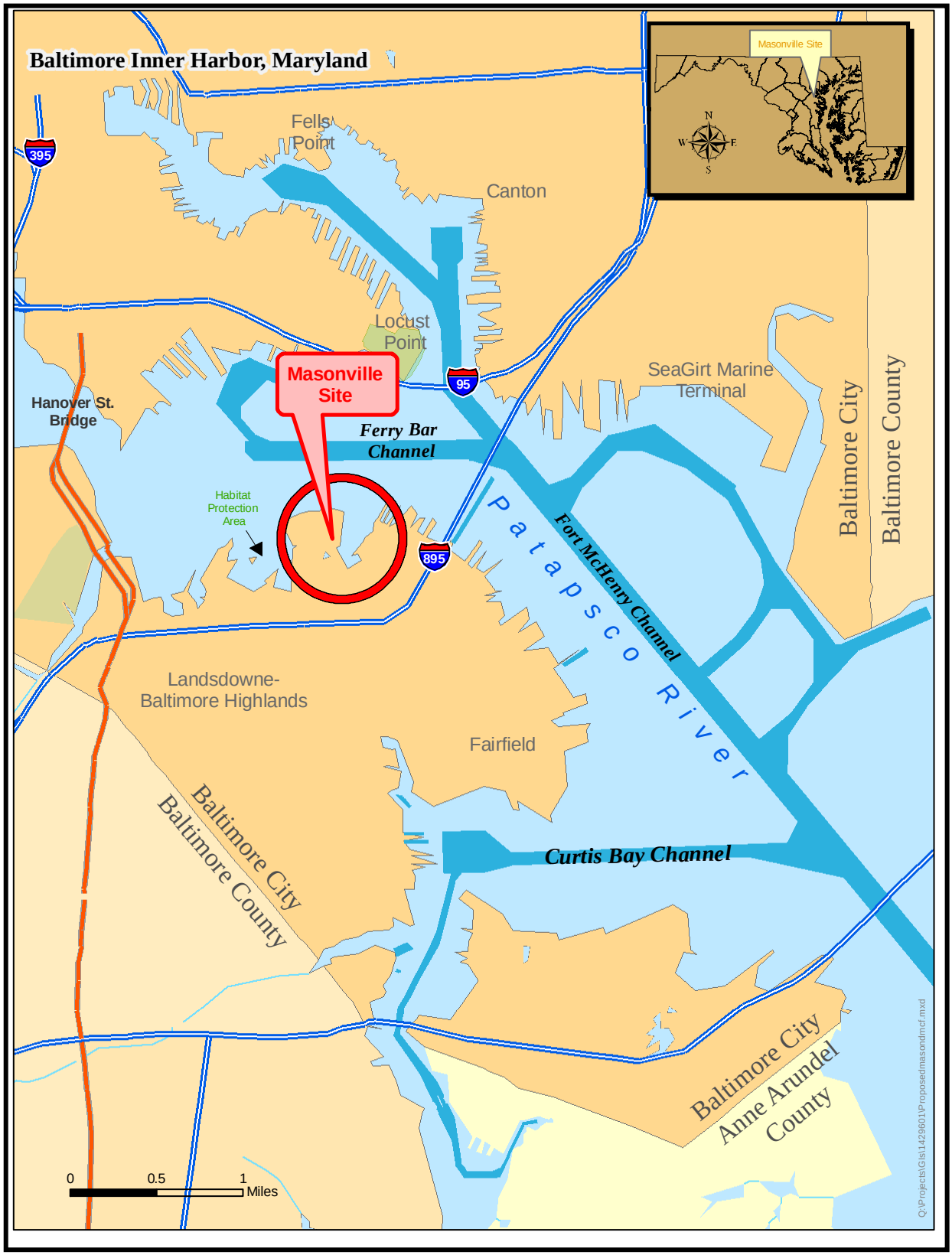
Working Group (BEWG) and State DMMP committees. The MPA met with the USACE - Baltimore District and MDE in March 2005 to begin the coordination process. The following tentative schedule for site permitting has since been developed:

- Publish Notice of Intent 26 May 2005
- Agency Pre-application Meeting 31 May 2005
- Conduct Scoping Process
  - Public Meeting 15 June 2005
  - Comments Due 15 July 2005
- Final EIS for Federal DMMP December 2005
- Federal DMMP Record of Decision Spring 2006
- Public Review of DEIS Begins May 2006
- File DEIS with EPA May 2006
- DEIS/Permit Application May 2006
- USACE/MDE Public Notice May 2006
  - Public Meeting June 2006
- USACE/MDE Joint Hearing June 2006
- Public Comments Due July 2006
- Circulate Final EIS (FEIS) August 2006
- File FEIS with EPA September 2006
- Record of Decision/Permit Decision October 2006

1.6 STUDY AREA

Masonville is located within the Baltimore Harbor, northwest of the Baltimore Harbor Tunnel toll plaza (I-895), in the Fairfield area of South Baltimore (Figure 1-3). Masonville is bordered by the Patapsco River and Ferry Bar Channel to the north, an industrial site to the south, approximately 55 acres of habitat protection area in Masonville Cove to the west and southwest, and the former KIM facility to the east. The shoreline area adjacent to the proposed alignment is owned by the MDOT and managed by the MPA. The site lies completely within the limits of Baltimore City. Details of the site characteristics can be found in Chapter 2.

The footprint of the proposed facility is 141 acres. The area contains 130 acres of tidal open water that would be filled, 1 acre of vegetated wetlands and 10 acres of upland within the Chesapeake Bay Critical Area buffer. Of the 130 acres of tidal open water, 3 acres are an existing unauthorized fill (dry dock) and are not available habitat and 123 acres would be converted to fastland. Six acres of existing open water would be become shallower areas with manmade substrates. One acre of fill would occur as the result of the moving sunken barges from the western portion of the proposed project footprint to the west of the project site. This will constitute one acre of fill. The tidal open water areas that would be lost include a channel next to the former KIM facility and an inlet known as the Wet Basin, located adjacent to BP-Fairfield Marine Terminal.



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690 **Figure 1-3. Location of the Proposed Masonville DMCF**

1.7 STUDIES COMPLETED

The Federal DMMP study was conducted by the USACE - Baltimore District. The 2-year study resulted in the *Baltimore Harbor and Channels Dredged Material Management Plan and Tiered Environmental Impact Statement* (USACE 2005). This first tier of the Federal DMMP is the basis for all of the site-specific actions and investigations that will be required to meet the 20-year dredging need for Baltimore Harbor and Channels. This study recommended multiple confined disposal facilities within the Baltimore Harbor.

The State study elements conducted to date at Masonville, BP-Fairfield and Sparrow Point and the responsible team members are described below.

1.7.1 Environmental Studies

These studies included a review of available data on environmental conditions and site-specific investigations at each site. Field data collection consisted of basic site information and detailed data collection for benthic organisms, fisheries, plankton, water quality, sediment quality, as well as wildlife observations.

1.7.2 Geotechnical Investigations

These investigations included a review of the geology of the area, as well as geotechnical boring data. This information was used to evaluate both the foundation and available borrow material or sand for construction. Detailed investigations and analyses were performed in support of preliminary structural and operational engineering and design.

1.7.3 Coastal Engineering Studies

These studies included a review of relevant data on bathymetry, topography, wind conditions, and water levels as a basis for estimating wave conditions for each option. Relevant data on currents and site soil characteristics were also reviewed with regard to effects on dike construction. Minimum initial dike elevations were determined along with storm coastal protection elements for the dikes. The hydrodynamic effects of options on currents and sediment transport were modeled and assessed as appropriate. The State feasibility-level studies included additional investigation and analysis along with preliminary design of appropriate structural features.

1.7.4 Dredging Engineering Studies

These studies included development of preliminary site configurations, dike alignments and heights, dike construction materials, placement capacities, initial construction costs, site development costs, habitat development costs, study costs, contingency costs, total costs, and total unit costs. Preliminary structural and operational engineering studies, design and preparation of concept-level plans and specifications were developed during the State feasibility-level studies.

1.7.5 Consultations and Stakeholder Involvement

This involvement includes agency consultations, State DMMP working group and committee meetings and briefings, public outreach, Harbor Team coordination, and State and Federal partner coordination.

1.7.6 Innovative Reuse Planning

The MPA has created an Innovative Reuse Committee to formulate a strategy to process 0.5 mcy of dredged material per year through cost-effective and safe innovative reuse. This committee is considering the options recommended by the Harbor Team in 2003.

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